IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:
Charles Edward Bowers

Docket: 30-2138 CIP2

Serial Number: 09/143,583

Group Art Unit: 1733

Filed: August 31, 1998

Examiner: Sam Chuan Cua Yao

For: YARN WITH HEAT-ACTIVATED BINDER MATERIAL AND PROCESS FOR MAKING

RESPONSE TO OFFICE ACTION

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

In response to the Office Action mailed January 21, 2004, please consider the following remarks:

REMARKS

The examiner has rejected claims 1-3 and 15 under 35 U.S.C. 102 or 103 over Queen et al (US 5,567,256) in view of Stahlecker et al (US 4,484,433), or Nomura et al (US 5,611,819), Scott (US 4,668,552) and GB 2,205,166A. Applicants respectfully submit that this ground of rejection should be withdrawn.

According to the invention, one first forms a bundle of first base fibers and then ring spins or wrap spins the bundle with the second fiber of heat-activated binder material to form a yarn. At least two of the yarns are then twisted to form a plied yarn, heating to melt the binder material followed by cooling. It is submitted that the combination of prior art does not suggest this process absent an impermissible reconstruction of the art in

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P.O. Box 1450
Alexandria, VA 22313-1450

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DATE: April 20, 2004

KINDLY DIRECT THIS COMMUNICATION TO:

EXAMINER : Sam Chuan C. Yao
GROUP : 1733

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light of applicant's disclosure.

Queen, et al forms a spun blend of cotton and polyester fibers, followed by melting the polyester and impregnating it into the cotton. Although spinning is done to form a blended yarn, as the examiner agrees, Queen et al. fails to teach ring spinning or wrap spinning a bundle of a first base fiber with a second fiber of a heat-activated binder material such that the second fiber is wrapped around or inserted into the bundle of first base fibers. With regard to claims 14 and new claims 16-20, it should be noted that Queen, et al do not mention nylon fibers. Queen, et al, in their step (10) of Fig. 1, merely bundles both cotton and polyester fibers together whereas the instant invention first forms a bundle of a first fiber and then ring or wrap spins that bundle of fiber with a second fiber. This is not shown or suggested by Queen' et al. The examiner then attempts to by showing that ring spinning or wrap spinning techniques are known in and of themselves. However, the secondary references do not suggest that a second fiber of a heat-activated binder material should be ring or wrap spun around a bundle of a first fiber, as is required by the present claims. The examiner thus attempts to fill this void by citing Nomura et al. and Stahlecker et al. It is urged that this is not the case.

Indeed Nomura et al shows that ring spinning may be used to spin fibers together. However, it is urged that there is no suggestion in the art which would direct one to combine Nomura with Queen, in an effort to formulate the presently claimed invention. Merely showing isolated features of the present claims in the cited art is not enough to show obviousness. Nomura et al. fails to teach or suggest a bundle base fiber of polyamides, polyesters, polyolefins, cotton or wool. While Nomura does disclose ring spinning in general, there is no ring spinning or wrap spinning the fiber with a second fiber comprising a heat-activated binder material, as the present claims show. There is no heating of the yarn to melt any binder material and causing the binder material to flow to intersecting points with the first base fiber; followed by cooling the plied yarn to solidify the binder material to thereby encapsulate and bind the first base fiber and retain the twist in the plied yarn.

Queen et al. fails to teach the wrap spinning of fibers to form a yarn. While Stahlecker, et al. mentions the practice of wrap spinning, it is only mentioned in the context of wrapping of a binder fiber around an already formed yarn. This differs from the teachings of the present claims, which require the wrap spinning of a bundle of fibers with a second fiber to form a yarn. The examiner asserts that a bundle of fibers reads on a yarn. Applicants dispute this assertion. The Examiner is required to provide a *prima facie* case of obviousness establishing the characteristics of a yarn prior to shifting the burden to Applicants to demonstrate that the claims present a feature different from the cited prior art. Applicants respectfully submit that such a showing has not been made.

Furthermore, there is no suggestion in Stahlecker that their wrapping fiber is a melting, heat-activated binder material; there is no heating to melt the binder material and causing the binder material to flow to intersecting points with the base fiber; followed by cooling to encapsulate and bind the base fiber and retain the twist in the yarn. The examiner takes the position that it would have been obvious to use a heat-activated material as taught by the present claims. Applicants respectfully disagree, and urge that the Examiner is looking beyond the teachings of the reference. There is no teaching anywhere in the cited art that offers motivation to one skilled in the art to combine these references, and wrap spinning of a bundle of fibers with a heat-activated binder material. The reference has to offer sufficient motivation for one skilled in the art to achieve the desired result. Such is not shown in the cited art. Since neither Stahlecker nor Queen teach these key features of the present invention, it is urged that a combining of these references would still fail to obviate the present claims.

Scott also pertains to wrapping a *multi-strand* binder yarn 12 *around a multi-strand* body yarn 11. The examiner takes the position that it is old in the art to conduct a wrap spinning operation to uniformly spiral wrap a binder yarn around a base yarn. However, it is urged that the examiner's point is irrelevant because in this reference there is no spinning a bundle of fibers with a second fiber to thereby form a yarn.

GB 2 205 116 also pertains to wrapping a bonding agent in filament form around a preformed twisted pile yarn. There is no spinning a bundle of fibers with a second fiber to thereby *form* a yarn a required by the claims.

Indeed, the references cited by the examiner may show one or more features of the present invention. However, in forming the rejection, the examiner leaps to the conclusion that, in effect, all sequences of such steps, include the particular one herein claimed must therefore be *prima facie* obvious. This is certainly not the case. This particular multistep process of this invention is not suggested by the art and the unexpected improvement is likewise not suggested.

It is urged that the mere fact that *five* references have been combined to support the examiner's finding of obviousness is, in itself, an indication of non-obviousness. The Examiner appears to be going to great lengths to locate and try to interrelate references involving fiber formation , but no matter how one applies or combines these references they do not teach using the specific sequence of steps in the claimed invention to attained the demonstrated benefits.

It is submitted that the examiner has not formed a *prima facie* case of obviousness. Even when the examiner attempts to reconstruct the art, the present invention is till not found. Certainly pieces of the invention and parts of the required steps are shown in the art, however, the invention as a whole is not suggested by the combination of references. For these reasons it is submitted that the rejection should be withdrawn.

The examiner has rejected claims 1-3 and 14-15 under 35 U.S.C. 102 or 103 over Stahlecker, et al (US 4,484,433), in view of Lofquist (US 5,478,624), Queen, et al (US 5,567,256), GB 2,205,166A and Scott (US 4,668,552). It is respectfully submitted that this ground of rejection is not well taken.

Stahlecker, et al, Queen, et al, GB 2,205,166A and Scott have been discussed above and the arguments from above are repeated. Stahlecker, et al shows wrapping a binder fiber around a yarn rather than a bundle of a base fiber. There is no ring spinning or wrap spinning a bundle of fibers with a second fiber to form a yarn. Queen, et al does not teach ring spinning or wrap spinning a bundle of fibers with a second fiber such that the second fiber is wrapped around or inserted into the bundle of first base fibers. GB 2 205 116 pertains to wrapping a bonding agent in filament form around a preformed twisted pile yarn. There is no spinning a bundle of fibers with a second fiber to thereby form a yarn a required by the claims. Scott pertains to wrapping a multi-strand binder yarn 12 around a multi-strand body yarn 11. There is no spinning a bundle of fibers with a second fiber to thereby form a yarn.

Lofquist is similar in materials to the present invention, however, as seen at column 3, lines 36-39, a binder fiber is blended with a base fiber by commingling. There is no mention of *ring spinning or wrap spinning* a bundle of fiber with a second fiber comprising a heat-activated binder material. Thus, it is urged that even upon combining this reference with the other cited art, the present claims would still not be obviated.

In addition, it is submitted that Lofquist is not available as prior art to this application since at the time of their respective inventions, both were subject to an obligation of assignment to the same party, namely AlliedSignal Inc. (see 35 U.S.C. 103, last paragraph). The examiner's analysis of the comparative filing dates of this application and that of the Lofquist patent is incorrect. The present application has been pending as a series of continuations in part since Nov. 24, 1986, i.e. before the filing date of the Lofquist patent. The question is not what this the overall effective filing date of this application. Rather, what is the effective filing date of any allegedly *common subject matter*. The burden is on the examiner in the first instance to demonstrate that the feature for which the Lofquist patent is applied was not disclosed in a continuation in part in the chain before disclosed by Lofquist. No such showing has been made. This application is a CIP of 08/933,822 now 6,682,618. But 6,682,618 is a continuation-in-part application

of Ser. No. 08/792,819 filed Jan. 30, 1997 now abandoned, which is a continuation of Ser. No. 08/516,506 filed Aug. 17, 1995 (abandoned) which is a continuation of Ser. No. 08/067,413 filed May 25, 1993 (abandoned) which is a continuation of Ser. No. 07/436,962 filed Nov. 15, 1989 (abandoned) which is a continuation of Ser. No. 06/934,389 filed Nov. 24, 1986 (abandoned). Therefore the rejection based on this combination of references is not supportable.

It is urged that one skilled in the art would not be imbued with an inspiration to produce a yarn using the instant process sequence of steps upon a reading of the Queen, et al, Nomura, et al Stahlecker, et al, Lofquist, Queen, et al GB 2,205,166A and Scott references.

On page 9 of the Office Action, the examiner mentions that the references are being analyzed in a piecemeal fashion. What the examiner does not mention is that the arguments in support of the rejection first selectively extract pieces of the invention from the several references, reassembles the pieces in light of the Applicant's plan, and then crowns the result with the conclusion that "it would have been obvious.....". This is not the analysis required by the case law. There must be a linchpin or *connector* of the pieces *in the prior art* which suggests that the proposed modifications should be made in order to form a *prima facie* case of obviousness. That is what is absent in this case. Forming a bundle of fibers is certainly known. Whether or not such a bundle of fibers reads on a yarn depends on the context. Ring or wrap spinning is certainly known in and of itself. The examiner has not yet shown in the references is first forming a bundle of fibers of first material and then ring or wrap spinning that bundle with a second heat activatable fiber material.

The examiner has provisionally rejected claims 1-3 under the judicially created doctrine of obviousness type double patenting over claims 16, 18 and 21 of serial number 08/933,822. It is respectfully submitted that this ground of rejection is not well taken.

The claims of this application are of significantly different scope as compared to claims 16, 18 and 21 of serial number 08/933,822.

It should be noted that serial number 08/933,822 has now been issued as U.S. Patent no. 6,682,618. This patent includes 5 claims, as shown below:

1. A process for producing a yarn suitable for tufting, said process comprising the steps of:
a) forming a bundle consisting essentially of a first base fiber prior to spinning, said first base fiber being selected from the group consisting of polyamides, polyesters, polyolefins, cotton and wool;
b) ring spinning or wrap spinning the bundle of fiber with a second fiber to form a yarn, said second fiber being twisted or wrapped uniformly around the bundle of fiber and consisting essentially of a blend of a second base fiber and a heat-activated binder material having a melting point lower than that of said bundle of fiber, said yarn comprising 0.1 to 12 weight percent of the binder material;
c) heating the yarn sufficiently to melt the binder material; followed by
d) cooling the yarn to solidify the binder material.

2. The process of claim 1 wherein the bundle of fiber is formed by spinning staple fiber.

3. The process of claim 1 wherein the first base fiber is nylon-6 having a melt point range of 215 to 225°C.

4. The process of claim 1 wherein the bundle of a first base fiber is selected from the group consisting of a sliver and a bundle of continuous filaments.

5. The process of claim 1 wherein said heat activated binder material has a melting point range of 105 to 190 °C under ambient conditions.

Claims 1-3 of the present invention which are rejected under this doctrine are shown below:

1. A process for producing a yarn suitable for tufting, said process comprising the steps of:

a) forming a bundle consisting essentially of a first base fiber, said first base fiber being selected from the group consisting of polyamides, polyesters, polyolefins, cotton and wool;

b) ring spinning or wrap spinning the bundle of fiber with a second fiber comprising a heat-activated binder material having a melting point range substantially below that of the base fiber to form a yarn, wherein said heat activated binder material has a melting point range of 105° to 190°C under ambient conditions, such that the second fiber is wrapped around or inserted into the bundle of first base fibers;

c) twisting two or more of the yarns to form a plied yarn comprising 0.1 to 12 weight percent of the binder material;

d) heating the plied yarn sufficiently to melt the binder material and causing the binder material to flow to intersecting points with the first base fiber; followed by

e) cooling the plied yarn to solidify the binder material to thereby encapsulate and bind the first base fiber and retain the twist in the plied yarn.

2. The process of claim 1 wherein said heating step occurs during twist setting of the plied yarn.

3. The process of claim 1, wherein the bundle of fiber is formed by spinning staple fiber.

In this case, the claims of 08/933,822 certainly do not suggest the combination of steps herein claimed. First, step (b) of 08/933,822 requires that the second fiber is twisted or wrapped uniformly around the bundle of fiber. The present claims do not require such uniform twisting or wrapping. Furthermore, the present claims state that the second fiber is wrapped around or inserted into the bundle of first base fibers. Such is not disclosed by 08/933,822. Additionally, 08/933,822 states that their second fiber consisting essentially of a blend of a second base fiber and a heat-activated binder material having a melting point lower than that of said bundle of fiber. However, the present claims state that the second fiber comprises such a heat-activated binder material. Thus, the present invention is free to include various other components while 08/933,822 is more limited in that respect.

The present claims further teach the steps of (d) heating the plied yarn sufficiently to melt the binder material and causing the binder material to flow to intersecting points with the first base fiber; followed by (e) cooling the plied yarn to solidify the binder material to thereby encapsulate and bind the first base fiber and retain the twist in the plied yarn. Each feature of these steps are not taught by 08/933,822, which merely discloses the steps of heating the yarn sufficiently to melt the binder material; followed by cooling the yarn to solidify the binder material.

For these above reasons it is respectfully urged that the presently claimed invention is patentably distinct from serial number 08/933,822 (U.S. Patent no. 6,682,618), and that the obviousness-type double patenting rejection should be withdrawn.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the

undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,

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Date: April 20, 2004

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office (FAX No. 703-872-9306) on April 20, 2004.

Richard S. Roberts